

3.1 Angles & Their Measures

Name _____ Date _____ Period _____

Convert the angle to decimal degrees and round to the nearest hundredth of a degree. Show work using the correct conversion ratios.

1. $23^{\circ}12'$

2. $35^{\circ}24'$

3. $118^{\circ}44'15''$

4. $48^{\circ}30'36''$

Covert the angle to degrees, minutes, and seconds. Show work using the correct conversion ratio.

5. 21.2°

6. 49.7°

7. 118.32°

8. 99.37°

Convert from degrees to radians. Use the value of π found on a calculator and round answer to four decimal places, as needed. Show work using the correct conversion ratios.

9. 60°

10. 90°

11. 120°

12. 150°

13. 71.72°

14. 11.83°

15. $61^{\circ}24'$

16. $75^{\circ}30'$

Convert the radian measure to degree measure. Use the value of π found on the calculator and round answers to two decimal places. Show work using the correct conversion ratio.

17. $\frac{\pi}{6}$

18. $\frac{\pi}{4}$

19. $\frac{\pi}{10}$

20. $\frac{3\pi}{5}$

21. $\frac{7\pi}{9}$

22. $\frac{13\pi}{20}$

23. 2

24. 1.3

Use the arc length formula and the given information to find the indicated quantity. Round answers to the nearest tenth if necessary. Show work using the formula.

25. $r = 2 \text{ in.}$, $\theta = 25 \text{ rad}$; find s

26. $s = 1.5 \text{ ft.}$, $\theta = \frac{\pi}{4} \text{ rad}$; find r

27. $s = 2.5 \text{ cm}$, $\theta = \frac{\pi}{3} \text{ rad}$; find r

28. $r = 1 \text{ cm}$, $\theta = 70 \text{ rad}$; find s

29. $s = 3 \text{ m}$, $r = 1 \text{ m}$; find θ

30. $s = 4 \text{ in.}$, $r = 7 \text{ in.}$; find θ

Find the exact area of the sector of the circle with the given radius and central angle.

31. $r = 6$, $\alpha = 30^\circ$

32. $r = 12$, $\alpha = \frac{\pi}{3}$

Review Problems

33. Show that $f(x)$ and $g(x)$ are inverses of each other.

$$f(x) = \frac{1}{x} + 2 \quad g(x) = \frac{1}{x-2}$$

34. Solve: $\log(x-2) = 0$

35. Solve: $2e^{x-1} = 6$